Office of the Fire Marshal

OFM-TG-02-2000

FIRE SAFETY PLANNING FOR INDUSTRIAL OCCUPANCIES

O

F

M

July 2000

GUIDELINE

102-01880/

TABLE OF CONTENTS

SECTION **PAGE**

Abstract 4

1.0 SCOPE 5

2.0 BACKGROUND 5
2.1 General Requirements For Fire Safety Planning 5
2.2 What Is A Fire Safety Plan? 7
2.3 Benefits of Implementing a Fire Safety Plan 7

3.0 DEFINITIONS 8

4.0 THE TEN STEP PROCESS 9
4.1 Step 1 - Conduct a Fire Safety Audit 10
4.2 Step 2 - Appointment and Organization of Supervisory Staff 13
4.3 Step 3 - Develop Emergency Procedures 14
4.4 Step 4 - Fire Drill Procedures and Training 16
4.5 Step 5 - Maintenance of Building Facilities and Fire Protection Equipment 17
4.6 Step 6 - Alternate Measures for Temporary Shutdown of Fire Protection Equipment or Systems 17
4.7 Step 7 - Control of Fire Hazards 18
4.8 Step 8 - Fire Department Access For Fire Fighting and Related Fire Suppression Information 19
4.9 Step 9 - Preparing Schematic Diagrams and Site Plans 20
4.10 Step 10 - Posting Emergency Procedures and Emergency Phone Numbers 20

5.0 IMPLEMENTATION / UPDATING THE FIRE SAFETY PLAN 21

6.0 SUMMARY 22

Acknowledgments

This guideline has been prepared using a format developed in consultation with the following agencies, organizations and associations:

Association of Municipal Recycling Coordinators
Association of the Chemical Profession of Ontario
Canadian Association of Recycling Industries
Canadian Plastics Industry Association
Emergency Measures Ontario, Ministry of the Solicitor General
Fire Fighters Association of Ontario
Human Resources Branch, Ministry of Environment
Industrial Accident Prevention Association
Insurer's Advisory Organization Inc.
Ministry of Municipal Affairs and Housing
Municipal Fire Service Instructors Association
Ontario Automotive Recycler's Association
Recycling Council of Ontario
Occupational Health and Safety Branch, Ministry of Labour
Ontario Association of Fire Chiefs
Ontario Municipal Fire Prevention Officer's Association
Ontario Waste Management Association
Ontario Professional Fire Fighters Association
Public Health Branch, Ministry of Health
Solid Waste Association of North America

June, 2000
OFM Section: Fire Safety Standards at (416) 325-3100

The reproduction of this guideline for non-commercial purposes is permitted and encouraged. Permission to reproduce the guideline for commercial purposes must be obtained from the Office of the Fire Marshal, Ontario.

Abstract

This guideline is intended to assist owners and managers of industrial operations to develop and implement effective Fire Safety Plans for their businesses. The guideline also provides guidance for owners on how to comply with the various aspects of the Ontario Fire Code that apply to their property. The guideline has been designed in an easy to use, step-by-step format, with checklists and examples that can be useful for preparing a comprehensive Fire Safety Plan.

1.0 SCOPE

Fire safety is an important responsibility for everyone. The consequences of poor fire safety practices and a lack of emergency planning are especially serious in properties where processes or quantities of stored materials could pose a serious threat to the community and environment in the event of or an emergency.

In an effort to prevent fires and minimize the damage from fires when they occur, owners and operators of industrial occupancies are encouraged to develop and implement Fire Safety Plans for their property. This guideline provides a simple 10 step process and checklists that can help owners and operators put together a comprehensive Fire Safety Plan for their workplace.

2.0 BACKGROUND

2.1 General Requirements For Fire Safety Planning

A Fire Safety Plan is required under Section 2.8 and other areas of the Ontario Fire Code. It must be prepared, approved and implemented in the following industrial properties: (Refer to Section 2.8 "Emergency Planning" of the Ontario Fire Code for the actual requirements.)

- buildings or open areas where quantities of flammable and combustible liquids exceed 500 L in total or exceed 250 L of Class 1 Liquids;
- laboratories where flammable and combustible liquids are used or handled (Article 4.12.4.1.);
- buildings or premises containing 4 storeys or more, including storeys below grade;
- outdoor tire storage yards regulated by Subsection 3.5.3.;
- buildings containing a high hazard industrial occupancy (F1), having an occupant load exceeding 25 people (i.e., bulk plants for flammable liquids, warehouses for hazardous substances, cereal mills, feed mills, flour mills, grain elevators, chemical manufacturing and processing plants, distilleries, dry cleaning plants using flammable or explosive solvents or cleaners, lacquer, paint, varnish and pyroxylin product factories, rubber processing plants and spray painting operations);
- buildings containing a medium hazard industrial occupancy (F2), having an occupant load exceeding 100 people (i.e., aircraft hangers, cold storage plants, dry cleaning establishments not using flammable or explosive solvents or cleaners, freight depots, laboratories, laundries [except self-service], planing mills, printing plants, repair garages, tire storage, warehouses and woodworking factories); and
- buildings containing a low hazard industrial occupancy, having an occupant load exceeding 300 people (i.e., creameries, laboratories, power plants, storage garages and warehouses).

The Fire Code, Ontario Regulation 388/97, as amended, is a Provincial Regulation made under Part IV of the Fire Protection and Prevention Act, 1997, S.O. 1997, c.4. This regulation states that the owner is responsible for carrying out "all provisions of the Code". An "owner" is defined as, "any person, firm or corporation controlling the property under consideration."

In a court of law, the definition of "owner" could be interpreted to mean the owner whose name is on title (an individual or individuals, a corporation, etc.). "Owner" could also include any other person in control of the property such as an executive officer of a corporation owning the building, administrator, or even a maintenance supervisor. Penalties for non-compliance by an individual can be as high as $25,000 per count and/or imprisonment for up to one year. Penalties for corporations may be a fine of up to $50,000 per count.

Owners, managers and administrators of an industrial occupancy should be thoroughly familiar with their responsibilities under the Ontario Fire Code, since contravention of any provision can result in penalties as listed above.

In addition to the requirements within the Ontario Fire Code, the local fire department under the provisions of the Fire Protection and Prevention Act, 1997 may require the owner to develop and implement a Fire Safety Plan.

Owners should be proactive in the area of fire safety by developing and implementing a Fire Safety Plan, even in premises that are not required by law to have one.

The owner or an experienced business manager can prepare a Fire Safety Plan by following the steps outlined in this guideline and in consultation with the local fire department. In some instances, a qualified professional (Engineer, Architect, fire safety consultant, etc.), may be consulted to assist with development of the plan or portions of the plan.

Developing and implementing a Fire Safety Plan demonstrates an interest in promoting fire safety. In return for resources used to develop a Fire Safety Plan, the incidence and impact of fire will be reduced.

In instances where the Fire Safety Plan is required by the Ontario Fire Code or the local fire department, a copy of the plan must be submitted to the Chief Fire Official for approval and be retained on site in an approved location. Once approved by the Chief Fire Official, the owner is responsible for implementing all aspects of the Fire Safety Plan.

- The Ontario Fire Code, Ontario Regulation 388/97, as amended is available on the Industrial Fire Safety – Managing Your Fire Risk compact disk and from Publications Ontario, at 880 Bay Street, Toronto, M7A 1N8, 1-800-668-9938.

The Ontario Fire Code and other important information is also available from the Office of the Fire Marshal Web site by using the following URL: www.gov.on.ca/OFM

2.2 What is a Fire Safety Plan?

A Fire Safety Plan is a detailed document designed to deal with all aspects of fire safety relating to a specific building or property. The document is intended to be a reference manual outlining the fire safety practices to be routinely used. Each Fire Safety Plan should include the following information:

(Review the following information now, and use this checklist as you prepare your Fire Safety Plan to be sure the plan addresses each of these issues. Refer to the actual Ontario Fire Code Requirements outlined in Section 2.8.)

Every Fire Safety Plan should include:

✓

- ☐ emergency procedures to be used in case of fire, including: sounding the alarm, notifying the fire department, provisions for access for fire fighting, instructing occupants on procedures to be followed when the fire alarm sounds, evacuating endangered persons, and confining, controlling and extinguishing the fire;
- ☐ instructions on ways to prevent fires and methods to control fire hazards throughout the business;
- ☐ information about the appointment, organization and instruction of designated supervisory staff and other occupants, including their related fire safety duties and responsibilities;
- ☐ the method and frequency of conducting fire drills;
- ☐ detailed maintenance procedures for fire protection systems and building features;
- ☐ the identification of alternate fire safety measures in the event of a temporary shutdown of fire protection equipment or systems, so that occupant safety can be assured;
- ☐ instructions and schematic diagrams describing the type, location and operation of building fire emergency systems;
- ☐ in outdoor tire storage yards include procedures for notifying the fire department and assisting them in accessing the property for water tanker shuttle operations and fire fighting purposes.

2.3 Benefits of Implementing a Fire Safety Plan

- Reduces the incidence of fire
- Promotes fire hazard identification and elimination
- Promotes employee safety and awareness
- Increases employee morale by allaying safety concerns
- Coordinates business and fire department resources during a fire emergency
- Reduces the potential impact of a fire on the business and community (injuries, dollar losses, liability, etc.)
- Enhances Fire Code compliance

3.0 DEFINITIONS

The following definitions have been copied from Section 1.2 of the Ontario Fire Code to assist you in understanding the meaning of these words and phrases where they are used in this guideline and in the regulation. The definitions are intended to help people understand their meaning in the context of the regulation.

Approved: means approved by the Chief Fire Official.

Building: means any structure used or intended for supporting or sheltering any use or occupancy.

Check: means visual observation to ensure the device or system is in place and is not obviously damaged or obstructed.

Chief Fire Official: means the assistant to the Fire Marshal who is the Municipal Fire Chief or a member or members of the fire department appointed by the Municipal Fire Chief under Subsection 1.1.8. or a person appointed by the Fire Marshal under Subsection 1.1.8.

Combustible Liquid: means any liquid having a flash point at or above 37.8°C and below 93.3°C.

Flammable Liquid: means a liquid having a flash point below 37.8°C and having a vapour pressure not more than 275.8 kPa (absolute) at 37.8°C as determined by ASTM D 323, "Vapor Pressure of Petroleum Products (Reid Method)".

Flash Point: means the minimum temperature at which a liquid within a container gives off vapour in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

Inspect: means physical examination to determine that the device or system will apparently perform in accordance with its intended function.

Owner: means any person, firm or corporation having control over any portion of the building or property under consideration and includes the persons in the building or property.

Supervisory Staff: means those occupants of a building who have some delegated responsibility for the fire safety of other occupants under the Fire Safety Plan and may include the fire department where the fire department agrees to accept these responsibilities.

Test: means the operation of a device or system to ensure that it will perform in accordance with its intended operation or function.

Vapour Pressure: means the pressure exerted by a liquid as determined by ASTM D 323, "Vapor Pressure of Petroleum Product" (Reid Method).

4.0 THE TEN STEP PROCESS

The following synopsis outlines the Ten Step Process to developing a Fire Safety Plan.

Step 1	**CONDUCT FIRE SAFETY AUDIT**	*Identify all fire risks and employee resources*
Step 2	**APPOINTMENT AND ORGANIZATION OF EMERGENCY SUPERVISORY STAFF**	*Establish supervisory staff structure and related responsibilities*
Step 3	**DEVELOP EMERGENCY PROCEDURES**	*Establish procedures for what to do in case of fire*
Step 4	**FIRE DRILL PROCEDURES AND TRAINING**	*Train for effective response*
Step 5	**MAINTENANCE OF BUILDING FACILITIES AND FIRE PROTECTION EQUIPMENT**	*Check, inspect, test and maintain*
Step 6	**ALTERNATE MEASURES FOR TEMPORARY SHUTDOWN OF FIRE OF FIRE PROTECTION EQUIPMENT OR SYSTEM**	*What to do when emergency warning or suppression systems are down*
Step 7	**CONTROL OF FIRE HAZARDS**	*Avoid, prevent, reduce and control all fire hazards*
Step 8	**FIRE DEPARTMENT ACCESS FOR FIRE FIGHTING AND RELATED FIRE SUPPRESSION INFORMATION**	*Meet the needs of your Fire Department*
Step 9	**PREPARING SCHEMATIC DIAGRAMS AND SITE PLAN**	*Know your property; be prepared*
Step 10	**POSTING OF EMERGENCY PROCEDURES AND EMERGENCY PHONE NUMBERS**	*Post the Fire Safety Plan, Emergency Procedures and phone numbers in key locations*

4.1 *Step 1* - Conduct a Fire Safety Audit

The development of a Fire Safety Plan is intended to take into consideration:

- the special nature of the business;
- the availability of human resources;
- the fire safety features provided within each building or premise; and
- processes or operations which may create a fire hazard.

Before preparing a Fire Safety Plan, it is suggested that a fire safety audit of the property be conducted using the following checklists. The audit will help identify those factors affecting fire safety within the property. While conducting the audit, make notes of pertinent information relating to fire safety issues where applicable. This information is needed to develop a useful Fire Safety Plan designed to address a specific property and its special needs and characteristics. It will ensure the optimum use of staff and all safety features provided.

Auditing the Property

If the business involves outdoor storage or processes materials outdoors, begin the audit by examining the exterior of the property first.

Where a Certificate of Approval has been required to satisfy environmental or other purposes, the approval criteria should be re-examined to ensure the site still corresponds with the necessary compliance provisions.

Start by preparing a site drawing. This will help provide a better overall view of the fire safety issues affecting the property. The site drawing may become a key element of the Fire Safety Plan. The drawing should be made to scale, if possible, and identify the following;

✓

- ☐ drawing orientation (north, south, east, west);
- ☐ property lines;
- ☐ security fences;
- ☐ use or occupancy of adjoining properties, i.e., residential, industrial, etc., and the approximate distances to closest neighboring buildings and yard storage;
- ☐ points of entry for fire fighting vehicles;
- ☐ other points of entry;
- ☐ vehicle roadways and fire department access routes suitable for heavy equipment;
- ☐ buildings on site;
- ☐ water supplies, private hydrants, public hydrants, ponds, or reservoirs;
- ☐ outdoor storage areas listing the types and quantities of materials stored at each location;
- ☐ hazardous yard applications (i.e., compressed gas storage area, fuel dispensing station, etc.);
- ☐ waterways, dikes, drains, sewer and manholes;
- ☐ gas shut off valves or other important isolation valves;
- ☐ electrical facilities including, power lines, transformers, transformer vaults, etc.

Auditing the Building(s)

Next, prepare a separate detailed audit for each building on site. Features to examine and identify are (where applicable):

✓

- the nature of building construction (combustible or non combustible);
- building size by area, (area of each storey and total area);
- number of storeys, including basements;
- use and occupancy of the building;
- fire walls, required fire separations;
- explosion relief vents;
- fire department access points, including the principal entrance for fire department response;
- portable fire extinguishers;
- fire alarm system;
- sprinkler system;
- fire standpipe (hose) system;
- fire department pumper connections;
- water supply control valves and fire pumps;
- exits;
- emergency power and lighting equipment;
- hazardous processing areas (identifying the nature of the process);
- storage areas (identifying type and quantities of materials stored);
- gas shut off valves or other important isolation valves;
- electrical facilities including, transformers, transformer vaults, etc.

Auditing Human Resources

Compile information about the employees on site. This will ensure that the emergency procedures developed will be consistent with the available staff resources and be accounted for in the plan.

✓

- Identify the number of full time and part time employees who work on site.
- Identify the people who work on each shift, where applicable.
- Identify accommodation needs of employees (i.e., physical disabilities, language requirements)
- Identify security personnel if provided.
- Compile a list of telephone numbers for use during an emergency, including the building owner, the manager, supervisor, and other employees.
- Identify personnel assigned to critical tasks during emergency.

Auditing Materials Stored, Handled or Processed

Depending upon the nature of the business, a wide variety of materials may be stored, handled or processed on site. Many materials typically processed in industrial occupancies are stable and inert and don't pose a problem unless they become exposed to a fire.

Materials that pose a hazard in the event of fire include, but are not limited to:

- ☐ compressed gases— flammable, inert, corrosive, or poisonous;
- ☐ flammable/combustible liquids;
- ☐ liquid/solid chemicals, organic oils/solvents;
- ☐ reactive substances;
- ☐ oxidizing substances;
- ☐ radioactive materials
- ☐ explosives;
- ☐ plastics, any type;
- ☐ rubber, including tires, whole or shredded;
- ☐ combustible metals or metals treated with preservatives or oils;
- ☐ wood products (chemically treated or not);
- ☐ paper, cardboard;
- ☐ aerosol cans.

Refer to the following Sections of the Ontario Fire Code to determine if activities, equipment or processes involved in the business are regulated:

- ☐ Section 3.2 - Wood Products
- ☐ Section 3.3 - Storage (Indoor Tire Storage, Indoor General Storage)
- ☐ Section 3.4 - Industrial Trucks
- ☐ Section 3.5 - Salvage Shops And Salvage Yards
- ☐ Section 3.6 - Cleaning And Dyeing Plants
- ☐ Part 4 - Flammable and Combustible Liquids
- ☐ Section 5.2 - Explosives, Fireworks And Pyrotechnics
- ☐ Section 5.3 - Matches
- ☐ Section 5.4 - Cellulose Nitrate Plastics
- ☐ Section 5.5 - Ammonium Nitrate
- ☐ Section 5.6 - Compressed Gas Cylinders
- ☐ Section 5.10 - Combustible Dust Producing Processes
- ☐ Section 5.11 - Combustible Fibres
- ☐ Section 5.12 - Spray Applications Using Flammable And Combustible Materials
- ☐ Section 5.13 - Dip Tanks
- ☐ Section 5.14 - Special Processes Involving Flammable And Combustible Liquids
- ☐ Section 5.15 - Radioactive Materials
- ☐ Section 5.16 - Fumigation And Thermal Insecticidal Fogging
- ☐ Section 5.17 - Welding And Cutting
- ☐ Section 5.18 - Industrial Ovens For Baking And Drying Processes

The local fire department may be consulted about questions or problems that arise during this analysis.

Audit For Fire Hazards

One of the goals of fire safety planning is to reduce the frequency of fire. In order to achieve this goal, fire hazards must be identified and preventative measures put in place.

For example, ask the following questions:

✓ (Yes the hazardous activity or substances are present)

- ☐ Are aerosols used or significant quantities stored on site?
- ☐ Are industrial truck and lift equipment, battery charging operations conducted on site?
- ☐ Are combustible dusts, combustible fibres or combustible metals present or produced on site?
- ☐ Are compressed gases used or stored on site?
- ☐ Are electrical installations, temporary wiring, electrical equipment or machinery present on site that could be a potential source of ignition?
- ☐ Are flammable or combustible liquids handled, stored or used on site?
- ☐ Is heating, ventilating and/or air conditioning equipment on site?
- ☐ Are hot works activities carried out on site, including but not limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying or thawing pipes?
- ☐ Are industrial trucks and lift equipment used on site, including lift trucks or forklifts, clamp trucks, tractors, sweepers and motorized hand trucks or automatic guided vehicles?
- ☐ Are oxidizing or reactive substances stored or used on site?
- ☐ Are there refueling operations taking place on site? (vehicles or machinery)
- ☐ Is smoking permitted and not controlled?
- ☐ Are substances present that would be prone to spontaneous combustion?
- ☐ Are products or materials stored or warehoused on site?

4.2 *Step 2* - Appointment and Organization of Supervisory Staff

The Fire Safety Plan must also include the appointment and organization of designated **"supervisory staff"** (refer to definitions) and alternates who are required to be trained to respond to a fire emergency in a predetermined manner. Supervisory staff duties and responsibilities must be outlined in the Fire Safety Plan. Person(s) designated as supervisory staff must be qualified and willing to take on the added duties and responsibilities. Person(s) designated as "supervisory staff", do not have to be from management or be a supervisor from the company. They will need authority consistent with their assigned duties.

Employee and emergency supervisory staff responses must be well planned in order to reduce the risks from fire. It is essential that supervisory staff understand their responsibilities and are trained to respond to a fire emergency in a prompt, positive and intelligent manner.

Supervisory Staff/Employee Responsibilities for Fire Safety

In order for the emergency response portion of the Fire Safety Plan to be effectively implemented, all employees must understand the important role they play in promoting fire safety in the workplace. Everyone must adhere to the workplace fire safety practices and procedures. Orientation training for all employees should include fire safety instructions on:

- what to do upon discovery of fire
- what to do upon hearing an alarm of fire
- how to prevent or minimize fire hazards in the workplace

Depending upon various factors, the Fire Safety Plan may only involve the designation of one or two emergency response supervisory staff. In larger operations, a more structured emergency response by designated supervisory staff may be required including fire wardens who are trained to coordinate the evacuation of specific areas, others who provide fire fighters access and assistance and/or a fire brigade trained and equipped to confine and extinguish a fire.

Owner/Manager Responsibilities for Fire Safety

- Ensure the Fire Safety Plan is developed, approved and fully implemented.
- Appoint, organize and train emergency supervisory staff to carry out fire safety duties and emergency procedures.
- Ensure a sufficient number of assistants are designated and trained to act in a supervisory capacity in the event that the appointed emergency supervisory staff are absent from the building/site.
- Ensure that fire drills involving all supervisory staff are held at least once a year.
- Ensure that fire hazards are identified and eliminated or controlled.
- Provide alternate measures for fire safety during the temporary shut down of fire protection equipment or systems.
- Have the necessary checks, tests, inspections and maintenance of fire protection equipment completed as required by the Fire Code.
- Keep permanent records of all tests and corrective measures for a period of at least two years.
- Keep adequate records of training and fire drills for a period of at least one-year.

4.3 *Step 3* - Develop Emergency Procedures

The Fire Safety Plan must include emergency procedures to be used in case of fire. This includes:

- sounding the fire alarm;
- notifying the fire department;
- provisions for access for fire fighting;
- instructing occupants on procedures to be followed when the fire alarm sounds;
- evacuating endangered occupants; and
- confining controlling and extinguishing the fire.

The procedures for outdoor operations will differ from those to be followed by occupants within buildings.

Sample of Typical Emergency Procedures for all Employees

Upon discovery of fire

- Leave the fire area immediately and assist anyone in immediate danger to evacuate.
- Close all doors behind you to confine the fire.
- Activate the fire alarm and/or alert other staff.
- Notify the fire department. (All telephones on site should have the emergency phone number of the fire department listed and the address of the property conspicuously posted close by for reference in an emergency.)
- Use exit stairwells where appropriate to leave the building.

Upon Hearing an Alarm of Fire

- Shutdown process equipment in a preplanned manner where applicable.
- Leave the building immediately.
- Close all doors behind you to confine the fire.
- Use exit stairwells where applicable to leave the building.
- If designated with fire emergency duties, carry out pre-planned procedures.

NOTE:

- Do not use the elevator(s)
- Do not re-enter the building.

Sample of Minimum Supervisory Staff Duties to be Followed in Event of Fire

- Call the Fire Department
- Provide access to the fire fighters, (provide entry, master keys, etc.)
- Meet arriving fire fighters
  - ⇒ provide them with relevant information about the quantities and nature of materials stored or processed on site
  - ⇒ provide them with a copy of the Fire Safety Plan and related drawings
  - ⇒ provide other assistance as required including access keys and codes, etc.
- Do not silence the fire alarm system or shut off the sprinklers until instructed to do so by the fire department

4.4 *Step 4* - Fire Drill Procedures and Training

Training and practicing fire drills must become an integral part of each facility's preparedness. A fire emergency often generates anxiety and excitement, which may create a stressful environment for responders and decision makers. Persons with little training or experience may have difficulty dealing effectively with the emergency.

Fire drill procedures must be prepared in consultation with the fire department and be outlined in the Fire Safety Plan. The fire drill must involve the response of supervisory but should take into consideration the response of other employees and people on site or present in the building. Having all employees participating in the fire drill will derive significant benefit.

Supervisory staff must be instructed in the fire emergency procedures that are described in the Fire Safety Plan before they are given any responsibility for fire safety. A copy of the fire emergency procedures and other duties outlined in the Fire Safety Plan must be given to all supervisory staff.

Employees should receive training in the safe use of portable fire extinguishers and other fire safety equipment. This would include instructions on how to activate and reset the fire alarm system where appropriate.

Staff must be instructed to react quickly to a fire emergency. At the same time, personal safety must be promoted.

Fire drills must be conducted at least once each year (Subsection 2.8.3. of the Ontario Fire Code). The date and time of all fire drills, as well as the names of participating staff, must be recorded and be retained for at least one year after the drill.

Other Factors to Consider When Organizing and Conducting Fire Drills

- Does the local fire department have to be notified of the fire drill?
- Do all employees understand the procedures they are expected to follow in an emergency (are there language barriers, etc.)?
- Are there people who require assistance in evacuating (mobility/hearing disabilities)?
- Are the fire drills pre-announced or a surprise?
- Are employees trained to safely shut down critical systems or equipment they are using during an emergency in order to prevent further hazards?
- Are fire drills conducted at different times to train employees and supervisory staff on all shifts?
- Are measures in place to respond to the safety needs of guests or contractors during an emergency?
- Will employees practice using fire fighting and related safety equipment to enhance their personal safety and response to a fire emergency?
- Is a procedure established to evaluate the fire drill once it has been completed and to correct for any deficiencies noted?

4.5 *Step 5* - Maintenance of Building Facilities and Fire Protection Equipment

The Fire Safety Plan must contain a detailed schedule identifying the required **checks, inspections** and **tests** (refer to definitions) of all fire safety systems and features provided.

The building owner/manager must:

- Ensure that all fire protection features provided in each building are **checked, inspected, tested** and maintained in accordance with the frequencies specified in Parts 2 and 6 of the Ontario Fire Code and all applicable referenced standards;
- When using in-house personnel to conduct some of the checks, inspections and tests, ensure they are fully trained and qualified to carry out the activity;
- Keep permanent records of all tests and corrective measures taken for a period of two years after they are made. If time intervals between tests exceed two years, the records shall be retained for the period of the test interval plus one year. The records are to be made available upon request to the Chief Fire Official (Subsection 1.1.2. of the Ontario Fire Code).

4.6 *Step 6* - Alternate Measures for Temporary Shutdown of Fire Protection Equipment or Systems

Alternative measures must be included in the Fire Safety Plan. The following information outlines some examples of alternative measures. Where possible, all staff should be made aware of temporary shutdowns.

The following practices and procedures are provided as a guide:

Temporary Shut Down of Fire Alarm System (example)

Notify all supervisory staff that the fire alarm system is temporarily shut down. A fire watch shall be appointed to conduct a sequential tour of the building in areas normally served by fire detection devices (i.e., rooms or spaces protected by sprinklers, heat detectors, smoke detectors or some other form of fire detection devices). Persons conducting the fire watch would record their patrols and be provided some means of communication to notify the fire department in the event of a fire. In the event of fire, efforts must be taken to notify persons in the building that a fire emergency exists.

Temporary Shut Down of Standpipe System (example)

Notify all supervisory staff and the fire department that the standpipe system is temporarily shut down.

Temporary Shut Down of Sprinkler System (example)

Notify the Fire Department (phone # _____) and all supervisory staff that the sprinkler system is temporarily shut down. The work conducted on the sprinkler system shall be scheduled by the contractor to enable the system to be operational as quickly as is possible in the circumstances. Full sprinkler protection shall be restored when work on the system is discontinued. Closed sprinkler valves shall be tagged or marked in an approved manner. (Refer to Ontario Fire Code Subsection 6.5.2.)

While the sprinklers are shut down, a fire watch shall patrol the area until the sprinkler system has been restored. "Hot works" such as welding or cutting should be prohibited in the area where the sprinkler protection is impaired or be limited to areas where precautions have been put into place.

Temporary Shut Down of Special Extinguishing Systems (example)

Everyone working in an area where a special extinguishing system is shut down and all supervisory staff must be notified. The fire department should also be notified.

4.7 *Step 7* - Control of Fire Hazards

The owner and/or managers must take the lead role in identifying potential fire hazards and establishing fire prevention practices to eliminate or control the hazard(s) safely. All employees must understand that every precaution is to be taken to minimize accidents and prevent injuries. Employees must be fully trained in the established fire prevention practices and these practices be adopted by everyone and be fully enforced.

The information collected while preparing the *Audit of Materials Stored, Handled or Processed* (Step 1) may reveal a number of potentially hazardous activities that should be carefully monitored and controlled. The Fire Safety Plan must contain detailed procedures/practices for monitoring and controlling each of the activities. The fire prevention practices should take into account the requirements of applicable regulations and practical fire safety precautions. Employees working in these areas must be trained to carry out the established procedures in order to reduce the risk of fire.

Procedures and training that require consideration include, but are not limited to:

✓ Applicable	✓ Needs Improvement
☐ Storage and handling of aerosols;	☐
☐ Battery charging operations;	☐
☐ The presence of combustible dusts, combustible fibres or combustible metals on site;	☐
☐ Storage and handling of compressed gases;	☐
☐ Electrical installations, temporary wiring, electrical equipment or machinery;	☐
☐ Storage and handling of flammable or combustible liquids;	☐

- ❑ Maintenance of heating, ventilating and/or air conditioning equipment; ❑
- ❑ Hot work activities carried out on site involving open flames or producing heat or sparks, including without being limited to cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes; ❑
- ❑ The use of industrial trucks and lift equipment including lift trucks or forklifts, clamp trucks, tractors, sweepers and motorized hand trucks or automatic guided vehicles; ❑
- ❑ The storage and handling of oxidizing or reactive substances; ❑
- ❑ Refueling operations (vehicles or machinery); ❑
- ❑ Controlling the hazards associated with smoking; ❑
- ❑ The storage and handling of substances that are prone to spontaneous combustion; ❑
- ❑ Storage and warehousing practices; ❑
- ❑ Other hazardous activities. ❑

4.8 *Step 8* - Fire Department Access For Fire Fighting and Related Fire Suppression Information

Once a fire begins, it spreads rapidly. For this reason, it is essential that the fire department obtain access to the property as quickly as possible. A designated employee (supervisory staff) must be trained to respond to an emergency to ensure that the fire department can enter the property without delay to initiate fire suppression activities. The designated employee must be knowledgeable about the property and associated processes that take place in it.

Fire emergencies occurring after regular business hours can also lead to a delay in the fire departments' ability to locate the fire and initiate fire suppression activities. Some businesses and fire departments utilize a security "lock box" arrangement to reduce this type of delay. In the absence of on-site personnel, the fire department can obtain prompt access to keys to permit prompt entry and to other important information.

In addition to providing access for fire fighting, the fire department may also request other important information about the property and its contents when they arrive, including the provision of the Fire Safety Plan, keys, access codes, etc.

For example, the fire department may request a current inventory of materials that are stored and/or processed on site to be retained for reference during an emergency. Many materials stored or processed on site are stable and inert, however if they become involved in a fire, they can pose serious risks to emergency responders and to the surrounding community. The inventory would identify the location, type and quantities of materials present. It could also contain information about the properties of the materials, identify the combustion by-products, fire fighting techniques and other relevant factors. This type of information can often be obtained by referring to Material Safety Data Sheets (MSDS) or from other sources.

This information should be kept readily available for fire department reference along with the instructions and schematic diagrams described in Step 9. Ask the local fire department what information would be useful to them during an emergency.

Other factors to take into consideration may include but not be limited to:

✓

- Establish procedures for fire department notification of supervisory staff after regular business hours.
- Identify fire department access problems that could be created due to seasonal climatic conditions.
- Establish procedures to prevent obstructions to fire fighting created by site machinery or due to temporary obstructions created by materials placed in aisles or roadways.
- Establish procedures to gain access to other critical areas in a building or to fire equipment in a shared industrial complex (i.e., gas shut off, fire protection control valves, etc.)

4.9 *Step 9* - Preparing Schematic Diagrams and Site Plans

The Ontario Fire Code Clause 2.8.2.1. (h) requires, *"instructions, including schematic diagrams, describing the type, location and operation of building emergency systems"* to be prepared for use by responding supervisory staff and fire fighters during an emergency.

Where the property is large, or there are outdoor activities that may pose a fire or access problem, a site drawing should also be prepared and incorporated in the Fire Safety Plan. (Use the checklist provided in step one auditing your property and building.) When preparing the schematic diagrams and site plan, ensure that the information is useful and simple.

Refer to Appendix A for a legend of sample symbols which could be used to standardize the various elements that are identified on the drawings. Also remember to include a compass type of orientation symbol (North arrow).

In addition to the schematic diagrams, an inventory of materials and a site drawing would be extremely useful during an emergency. Information of this nature is not required by the Ontario Fire Code, however the information would be very useful for firefighters to refer to in the event of a fire. In some instances, municipalities may have a by-law that requires the owner to compile and provide this type of information to the fire department. Consult with the local fire department to determine the amount of detail needed in the drawings that are incorporated into the Fire Safety Plan.

4.10 *Step 10* - Posting Emergency Procedures and Emergency Phone Numbers

✓

- Every telephone should have the fire department telephone number and the business' name and address prominently posted close by for reference during an emergency.

- The emergency procedures must be clearly posted in each storey of every building.

- A copy of the Fire Safety Plan must be kept in a location approved by the Chief Fire Official.
- The schematic diagrams, instructions and related information about the property should be readily accessible to responding fire department personnel in an emergency.
- In outdoor tire storage yards, the telephone number of the fire department and location of the nearest telephone must be prominently posted and maintained at the storage yard.
- A current list of emergency phone numbers should also be prepared and be appended to the Fire Safety Plan for ease of reference during or after an emergency.

The emergency phone number list should include but not be limited to:

- fire department
- ambulance
- police department
- owner
- manager
- fire alarm service company
- sprinkler service company

In addition, if the business contains materials or substances that would pose a risk to the environment or community in the event of fire, the following phone numbers should also be kept readily available for reference during an emergency.

- The Ministry of the Environment, Spills Action Centre 1-800-268-6060
- CANUTEC (Canadian Transport Emergency Centre) 613-996-6666 (emergency)

5.0 IMPLEMENTATION / UPDATING THE FIRE SAFETY PLAN

To derive the full benefit of the Fire Safety Plan:

✓

- Implement all aspects of the Fire Safety Plan.
- Ensure that any changes in the facility or the operation are reflected in the Fire Safety Plan and that the Fire Safety Plan is approved by the Chief Fire Official.
- Ensure that all employees are trained in the procedures to take upon discovery of fire or upon hearing an alarm of fire.
- Ensure that all employees are trained in the precautions and procedures required to be taken to control and eliminate fire hazards.
- Conduct required fire drills and train the designated supervisory staff to respond to a fire or an alarm of fire in a prompt and safe manner.

- Schedule and perform the required maintenance of the fire safety features provided in the building as required.
- Routinely update relevant information pertaining to changes in the inventory of site materials for the fire fighters reference during an emergency.
- At least once a year, review the contents of Fire Safety Plan to ensure that it remains current.
- Consult with the local Chief Fire Official before making any changes to the Fire Safety Plan.

6.0 SUMMARY

The preparation and implementation of a Fire Safety Plan, helps to assure effective use of people and resources to control and eliminate fire hazards in the workplace and to respond effectively to a fire emergency. This will reduce the incidence of fire, protect life safety and reduce the impact of fire should one occur.

Appendix A

Sample Symbols for Diagrams and Drawings

2HR	FIRE-RATED WALL (FULL BUILDING HEIGHT)
	FIRE-RATED SEPARATION
2HR	FIRE-RATED SEPARATION (NOT FULL HEIGHT OF THE BUILDING)
	SMOKE BARRIER (NOT RATED)
	SMOKE BARRIER (NOT RATED PARTITION WALL)
	SMOKE BARRIER (COMBINATION FIRE AND SMOKE BARRIER)
	SWINGING FIRE DOOR
FD	SLIDING/ROLLING FIRE DOOR
EXIT	EXITS
FDA	FIRE DEPARTMENT ACCESS POINTS
FE	ELEVATORS (FIRE FIGHTERS)
E	ELEVATORS (GENERAL)
ANN	FIRE ALARM ANNUNCIATOR
FAP	FIRE ALARM CONTROL PANELS
FHC	STAND PIPE FIRE HOSE STATION
SP	SPRINKLER CONTROL VALVES
	HYDRANTS (PRIVATE)
	HYDRANTS (PUBLIC)
AS	SPRINKLERED AREAS
FE	FIRE EXTINGUISHERS
NS	NON-SPRINKLERED AREAS
	FIXED EXTINGUISHING SYSTEM
APP	APPROVED FIRE SUPPRESSION SYSTEM
	FIRE DEPARTMENT CONNECTIONS
	WATER TOWER OR TANK ABOVE GROUND – VERTICAL
	WATER TOWER OR TANK ABOVE GROUND – HORIZONTAL
	PRESSURE TANK
ST	ISOLATION VALVE – STANDPIPE
IV	ISOLATION VALVE
6"	WATER MAINS WITH SIZE INDICATION

1	EXPLOSIVES
2	COMPRESSED GAS
3	FLAMMABLE LIQUIDS
4	FLAMMABLE SOLIDS
5	OXIDIZING SUBSTANCES
6	POISONOUS AND INFECTIOUS SUBSTANCES
7	RADIOACTIVE MATERIALS
8	CORROSIVE SUBSTANCES
9	MISCELLANEOUS
PCB	POLYCHLORINATED BIPHENYL
MSDS	MATERIALS SAFETY DATA SHEET
NG	NATURAL GAS SHUT OFF VALVE
P	PROPANE SHUT OFF VALVE
O	OIL SHUT OFF VALVE
	WATER SHUTOFF VALVE
E	ELECTRICAL MAIN DISCONNECT SWITCHES OR PANEL
T	ELECTRICAL TRANSFORMER ROOMS
	FIRE FIGHTING WATER DRAINAGE POINTS
	VENTILATION OPENINGS
	PRESSURIZED STAIRWELL
S	SMOKE SHAFT OPENING IN THE ROOF
S	SMOKE SHAFT OPENING
F.D. ACCESS	FIRE DEPARTMENT ACCESS ROUTES
	EXPLOSION RELIEF WALL (DIRECTION OF EXPLOSION)
	BLAST RESISTANT WALL
GE	EMERGENCY GENERATOR
	MANUAL START-UP SYSTEMS